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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/782,813

02/23/2004

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EXAMINER

PIPALA, EDWARD J

ART UNIT

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3663

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DELIVERY MODE

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/782,813	Applicant(s) TAKAHASHI ET AL.	
	Examiner EDWARD PIPALA	Art Unit 3663	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 13 November 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,4-10,12,14-16 and 19-27 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,4-10,12,14-16 and 19-27 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 23 February 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. This Office action is in response to Applicant's amendment and remarks filed 11/13/07.
Claims 1, 4-10, 12, 14-16 and 19-27 are presently pending.
Claims 2-3, 11, 13, 17-18 and 28-29 have been canceled.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1, 4-10, 12, 14-16 and 19-27 are still rejected under 35 U.S.C. 102(e) as being anticipated by Seto et al. (US Pub. 2003/0067219 A1) .

Independent claims 1 and 10 recite an automatic braking system for a vehicle comprising a forward-monitoring unit that automatically detects an obstacle preceding the vehicle and a control unit that varies an assumed characteristic of manual steering and executes an automatic braking control operation to avoid a potential collision with the obstacle based on the previously assumed manual steering operation characteristic, wherein the assumed manual steering operation characteristic is at least one of a maximum steering angle and a steering speed.

Independent claim 12 also recites an automatic braking system for a vehicle comprising: a forward-monitoring unit that automatically detects an obstacle preceding the vehicle, and a geometrical relationship among the vehicle, the obstacle and a path where the vehicle is traveling; and a control unit that varies an assumed characteristic of manual steering and executes an automatic braking control operation to avoid a potential collision with the obstacle based on an assumed manual steering operation of the vehicle and the geometrical relationship; and a brake control unit that generates a braking force according to the automatic braking control operation determined by the control unit, and also includes the newly recited limitation of the assumed manual steering operation characteristic being at least one of a maximum steering angle and a steering speed.

The Seto et al. publication specifically discloses an automatic braking system for a motor vehicle wherein it is judged that a possible collision of the own vehicle with a preceding vehicle is avoidable by operation of either of the brake pedal or the steering wheel, and subsequently applies a braking force when it is judged that the possible collision is unavoidable by operation of either the brakes or by steering. Figure 1 of Seto et al. discloses the use of a forward-monitoring unit in the form of the laser radar unit (1), a control unit (10) and a braking force control device (15). Furthermore, figures 3 and 4 show a geometrical relationship being established and determined between the own vehicle and the preceding vehicle. Please also see figures 5 and 6 which relate to steering speed (manually operation dependent) and tire slip angle (a characteristic of the state of the vehicle). These aspects are also disclosed and discussed in sections [0052-0053] of Seto et al. Furthermore, with respect to determining the steering characteristics based upon the condition of the path upon which

Art Unit: 3663

the vehicle is traveling, please again refer to figures 3 and 4 which show the condition of the road as being partially blocked in figure 4 whereas in figure 3 there still seems to be space available to each side of the preceding vehicle. With respect to the manual steering characteristic which is varied comprising at least one of a maximum steering angle and a steering speed, please refer to figure 5 of Seto et al. which is clearly labeled as showing a maximum steered angle along the vertical axis, and the included angle at the beginning portion of the graph representing and labeled as steering speed, before it reaches the maximum steering angle.

With respect to claims 4-5, 7, 19-22 and 27, which recite in increasing detail steering avoidance by passing on either the left or the right sides of the obstacle based on the steering characteristics of the vehicle, detecting an avoidance space width, a necessary lateral displacement needed to carry out the pass, that the steering characteristics dependent on the state of the vehicle are based on at one of a weight, yaw moment, vehicle speed, yaw rate, vehicle slip angle, etc., please see figure 7 which relates time needed to avoid a collision with vehicle speed and needed lateral distance, as well as sections [0024-0059].

With respect to remaining claims 6, 8, 9, 14-16 and 23-26, which additionally relate to the easiness with which steering avoidance and braking avoidance can be accomplished, please further see sections [0059-0075] which disclose the manner in which judgments are made with respect to whether to avoid a potential collision by braking or steering depending on how much time is available for braking, the amount of avoidance space in the form of a lateral distance is needed to make a pass to either side possible, selection of the side with the

greatest space available, and the distance d to the preceding vehicle. The relative “easiness” being a function of the magnitude of the distance to the vehicle, the relative speed of the vehicle when considering a steering avoidance maneuver, the slip angle of the tires which would be in effect for such a maneuver, and the speed with which a driver would have to move the steering wheel in order to accomplish a steering based avoidance maneuver before the braking time available may come to a catastrophic end.

Response to Arguments

3. Applicant's arguments filed 11/13/07 have been fully considered but they are not persuasive.

Applicant's arguments with respect to at least the independent claims appear to suggest that an interpretation of these claims includes or requires that a control unit for the “automatic braking system” performs the manual steering operation in accordance with a condition of a path which a vehicle is traveling so as to execute the automatic braking operation to avoid a potential collision, however at best the claim language is ambiguous with respect to the steering operation, especially in that each of the independent claims recite “dependent on a manual steering operation”, which the Examiner is interpreting as allowing for the operator's varied steering operation during an obstacle avoidance maneuver is being sensed with respect to the assumed steering characteristic of either maximum steering angle or steering speed as shown in figure 5 of Seto et al.

Applicant also suggests that Seto et al. does not teach or disclose collision avoidance with respect to avoidance space width, whereas the Examiner further contends that figure 2 of Seto et al. shows consideration of both collision avoidance by braking and collision

Art Unit: 3663

avoidance by steering action, of which the requirement of an available passing width around an obstacle is a necessary and inherent component in making that determination.

Conclusion

4. THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to EDWARD PIPALA whose telephone number is (571)272-1360. The examiner can normally be reached on M-S 9:30 - 5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jack Keith can be reached on 571-272-6878. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 3663

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

ejp

/Jack W. Keith/

Supervisory Patent Examiner, Art Unit 3663